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| 10/756,435 | 01/12/2004 | Gregg Bernard Lesartre | 200313784-1 | 2141 |

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| EXAMINER | |
|---|---|
| TEDOM, CLEMENT N | |
| **ART UNIT** | **PAPER NUMBER** |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/756,435 | LESARTRE, GREGG BERNARD | |
| | Examiner | Art Unit | |
| | Clement N. Tedom | 2619 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/12/04;04/20/04;09/11/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 9-12,17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi, US patent 6992987, (hereinafter Kobayashi), in view of Susnow et al, PGPUB 20020133762, (hereinafter Susnow).

**Regarding claim 9**, Kobayashi teaches a system that can handle failed links during training in a data communications architecture (see fig 2A and column 12, lines 30-45) comprising: a link training module cooperating with a serializer and a deserializer to establish and train communications links (see column 12, lines 30-45, as well as column 14, lines 22-26); link management data communicated between the serializer and the deserializer as part of a link training protocol to identify which links may not be working

properly (see column 12, line 30-45, and column 18, lines 29-50, where link status are determined by sending link management data indicating if link failed or passed training); Kobayashi does not teach an instruction set providing link training instructions to the serializer and to the deserializer to handle links that fail training.

Susnow, which is in the same field of endeavor (failure link training), teaches sending instruction to transmitter and receiver to handle link failure (see abstract, where instruction to retrain transmitter and receiver is sent out, also see section [0006])

It would have been obvious to one of ordinary skill in the art at the time the invention was made to instruct transmitter and receiver to handle failed link as taught by Susnow, in the invention of Kobayashi, in order to keep both transmitter node and receiver node synchronized at all time (see section [0025])

**Regarding claim 10**, Kobayashi, teaches that the link management have neutral disparity (see column 11, lines 65-67, column 12, lines 1-2, where data stream have equal number of 1s and 0s).

**Regarding claim11**, Kobayashi does not teach a link training module comprising a serializer and deserializer .

Susnow discloses a link training module comprising a serializer and deserializer (see section [0036]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a link training module comprising a serializer and deserializer as taught by Susnow, in the invention of Kobayashi, in order to be able to send the symbol data and symbol clock to I/O buffers, which in turn convert the double pumped symbol

data into single pumped symbol data on a high lane and a low lane. The high lane symbol data and the low lane symbol data and symbol clock are then sent to minor link physical error detector (see section [0036])

**Regarding claim 12**, Kobayashi teaches that serializer and deserializer data being encoded to have a neutral disparity (see column 11, lines 40-47, lines 65-67, and column 12, lines 1-4).

**Regarding claims 17and 22**, Kobayashi teaches a data communication architecture communicating data among computer processors a method to identify a failed link during training comprising (see fig 1, as well as column 12, lines 30-45):

establishing communications between serializers and deserializers of the data communications architecture to form communications links (see column 14,lines 20-26);

executing the training protocol on the serializers and the deserializers (see column 18, lines 30-48);

generating link management data for communication between the serializers and deserializers (see column 18, lines 28-49 , as well as column 10, lines 42-60, where link management data are sent); and upon the occurrence of a link failure, comparing how the link management data is being processed by the deserializers (see column 10, lines 20-30, where source/serializer look at transmitted by the receiver/deserializer in response to failure of link).

Kobayashi does not teach monitoring the communications between the serializers and deserializers as part of a training protocol.

Susnow teaches monitoring the communications between the serializers and deserializers as part of a training protocol (see abstract, where status bit are sent to monitor link).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to send status bit as taught by Susnow, in the invention of Kobayashi, in order to determine when link error reach a specific threshold and order resynchronization (see section [0025]).

**Regarding claim 22,** several means, which perform the above-mentioned function, are disclosed, which in accordance with 35 USC 112, 6$^{th}$ paragraph are interpreted as being a computing system comprising essentially memory, processor, serializer and deserializer...

Kobayahsi teaches a computing system comprising RAM, ROM, processor, (see column 18, lines 50-65) capable of perform the function mentioned above.

**Regarding claim 18**, Kobayashi teaches formatting the link management data to ensure uniform processing by the deserializers (see column 111, lines 40-53).

**Regarding claim 19,** Kobayashi teaches starting a new training initiation if a link failure occurs (see column 16, lines 1-5, and column 11, lines 40-50, where training pattern are generated by source /serializer to be transmitted to receiver/deserializer).

**Regarding claim 20**, Kobayahsi teaches configuring the serializer
and the deserializer to expect selected data packets (see column 11, lines 55-65, where serializer/deserializer expect data encoded using scheme such as 8B/10B).

**Regarding claim 21,** Kobayashi teaches retraining the failed link (see column 12, lines 31-45).

**Regarding claim 23,** Kobayashi, teaches that the link management has neutral disparity (see column 11, lines 65-67, column 12, lines 1-2, where data stream have equal number of 1s and 0s).

Claims 1-5,7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ducaroir et al, US patent 6167077, (hereinafter Ducaroir), in view of Kobayashi et al, US patent 6992987, (hereinafter Kobayashi).

**Regarding claims 1and 8**, Ducaroir teaches a computing system having a data communications architecture employing a serializer and a deserializer (see fig 3, as well as well as abstract), a method to handle failed link training comprising: initiating training of links between the serializer and deserializer of the data communications architecture; generating link management data for encoding by the serializer; communicating the encoded link management data to the deserializer by the serializer(see column 3,lines 12-25, as well as column 6, lines 32-42, where training is initiated, and link management data are send from serializer to deserializer); and processing the encoded link management data by the deserializer (see column 6, lines 38-43).

Ducaroir does not teach that the step of processing the encoded link management data by the deserializer is done upon observing a failure of the link training to identify a corrective action.

Kobayashi, which is in the same field of endeavor (failed link training), teaches a link training session on a serial communication, where the receiver process link management data upon detection a failure in link training (see column 12, lines 30-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to process link management data upon detection of failure in link training as taught by Kobayashi, in the invention of Ducaroir, In order to make the computing system more resistant to cable problem and therefore more suitable for external host to monitor applications (see column 12, lines 38-40).

**Regarding claim 8,** Ducaroir teaches a computer system which comprise computer readable medium (see column 18, lines 50-65) suitable for carrying instruction for executing the function discussed above

**Regarding claim 2,** Ducaroir teaches sending new training data from the serializer to the deserializer (which inherently means that the serializer and deserializer are reprogram to retrain the link) (see column 6, lines 55-60).

Ducaroir does not disclose sending new training pattern for around identified link failure

Kobayashi teaches sending new training data to correct identified link failure (see column 12, lines 30-40)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to process link management data upon detection of failure in link training as taught by Kobayashi, in the invention of Ducaroir, for the same reason discussed in the rejection of claim 1.

**Regarding claim 3**, Ducaroir teaches configuring the serializer and the deserializer to expect selected data packets (see column 4, lines 10-14, where serializer/deserializer expect data encoded using scheme such as 8B/10B).

**Regarding claim 4,** Ducaroir does not teach the link management having neutral disparity.

Kobayashi teaches that the link management has neutral disparity (see column 11, lines 65-67, column 12, lines 1-2, where data stream have equal number of 1s and 0s). It would have been obvious to one of ordinary skill in the art at the time the invention was made, to have neutral disparity in the management data as taught by Kobayashi, in the invention of Ducaroir, as it is very important for data sent at high rates because it helps reduce intersymbol interference.

**Regarding claim 5,** Ducaroir teaches communicating the link management data to a plurality of deserializer by serializer (see fig 1 and 20, where several serializer communicate with several deserializer, also see abstract).

**Regarding claim 7**, Ducaroir does not teach the step of communicating the link management data between the serializer and deserializer upon a link training event failure event.

Kobayashi teaches the step of communicating the link management data between the serializer and deserializer upon a link-training event. (See column 12, lines 64- 67, where receiver notify the source upon link failure, and see column 14, lines 23-26, where source has a serializer, and receiver has a deserializer, also see column 18, lines 30-50, where link management data are sent upon link failure)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to communicate ling management data upon link failure as taught by Kobayashi in the invention of Ducaroir, in order to retrain the link and make it more resistant to cable problem (see column 12, lines 38-41).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ducaroir in view of Kobayashi, and further in view of Bunton et al, PGPUB 20040071250, (hereinafter Bunton).

**Regarding claim 6**, Ducaroir does not teach that the link management data is compared across the plurality of deserializers.

Bunton, which is in the same field of endeavor (link training) teaches sending training management data over several links, and checking/comparing to determine if one link fails (see section [0050-0051]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to identify link that properly process link management data in order to locate the failed link and deactivate them (see section [0051]).

Claims 13- 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi, in view Susnow, and further in view of Bunton

**Regarding claim 13**, Kobayashi teaches data being transmitted from serializer to deserializer.

Kobayashi does not teach link management data is received by a selected number of deserializers for processing.

Bunton, which is in the same field of endeavor (link training) teaches data being sent serially to only trained link, with failed link being deactivated (see section [0050-0051]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to send link management data to selected deserializer as taught by Bunton, in the invention of Kobayashi, because some link may have failed the training and have been deactivated (see section [0051])

**Regarding claim 14**, Kobayashi does not teach comparison is performed by the link training module to identify which of the selected number of deserializers properly processed the link management data.

Bunton teaches sending training management data over several links, and checking to determine if one link fails (see section [0050-0051])

It would have been obvious to one of ordinary skill in the art at the time the invention was made to identify link that properly process link management data in order to locate the failed link and deactivate them (see section [0051]).

**Regarding claim 15**, Kobayashi does not teach that the link training module reprograms the serializers and deserializers after identifying which links are not working.

Bunton disclose a system for link training programmed to detect failed link (see section [0051])

It would have been obvious to one of ordinary skill in the art at the time the invention was made to identify failed link in order to deactivate them (see section [0051]).

**Regarding claim 16**, Kobayashi teaches that the link training module retrain the failed link (see column 12, lines 30-45).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clement N. Tedom whose telephone number is (571) 270-1827. The examiner can normally be reached on Monday-Friday, 7:30-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CNT

Clement Tedom

Patent Examiner

10/30/07

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